

CONNECTOR				ACCESSORIES		
NUMBER OF POSITIONS	PLUG HOUSING	RECEPTACLE HOUSING		CONDUCTOR SEAL	SEAL PROTECTOR TYPE II, III(+), VI CONTACT	
		FREE HANGING	MOUNTING FLANGE		PIN	SOCKET
1	207901-1	207902-1	207982-1	207565-2	208337-1	208338-1
2	207845-1	207846-1	207853-1			
3	207567-1	207563-1	207807-1			
4	207571-1	207569-1	207808-1			
5	207847-1	207848-1	---			
6	207849-1	207850-1	---			
7	207575-1	207573-1	---			
8	208678-1	211068-1	208677-1			
9	208530-1	208538-1	208546-1			

Figure 1

## 1. INTRODUCTION

This instruction sheet covers the components and assembly procedures of the ECONOSEAL Connectors. See Figure 1.

Read this document and all referenced material before starting the assembly.

### NOTE



All dimensions on this document are in metric units [with U.S. customary units in brackets]. Figures and illustrations are for identification only and are not drawn to scale.

See Section 10, REVISION SUMMARY, for revision information.

## 2. DESCRIPTION

These polarized plug and receptacle connectors seal against normal environmental conditions. They are available with 1 through 9-contact position housings. Both the front (mating face) and back (contact entry) of the housings have numbered contact cavities. Free-hanging or panel-mounted applications can be made with the appropriate receptacle housing. See Figure 1.

Plug housings are shorter than receptacle housings. Plug housings feature a retention ring with gripping ribs, polarizing ribs, a shallow mating face, conductor seals, and a sealing rim. These housings are designed for socket contact configurations.

The connectors will accept any of the contacts in the Multimate Program that have a wire size range of 18-14 AWG, and an insulation range of 1.78-3.30 mm [.070-.130 in.]. See Figure 1.

Sealing plugs are available for unused contact cavities.

### 3. CONTACT SELECTION (Figure 2)

There are three forms of contacts: (1) loose-piece (all styles), (2) tape-mounted strip (Type II only), and (3) continuous metal strip (all styles except Type II). The loose-piece contacts are for low-volume applications while the Type III(+) and Type VI strip contacts are for high-volume applications.

There are four styles of contacts as shown in Figure 2. Make your selection as follows:

1. Determine the type and size of conductor specified for your application.
2. Determine the contact style that you are going to use. See Figure 2.
3. Refer to the instruction sheet packaged with the contacts for contact and tool selection. See

Figure 2. If Type III(+) and Type VI strip contacts are going to be used, consult your local TE Representative or the Tooling Assistance Center at the bottom of page 1 for the machine that will best suit your production needs.

### 4. ORIGINAL INSERTION OF CONTACTS

#### NOTE



The procedure for original insertion differs from the re-insertion procedure described in Section 7, RE-INSERTION OF UNDAMAGED COMPONENTS.

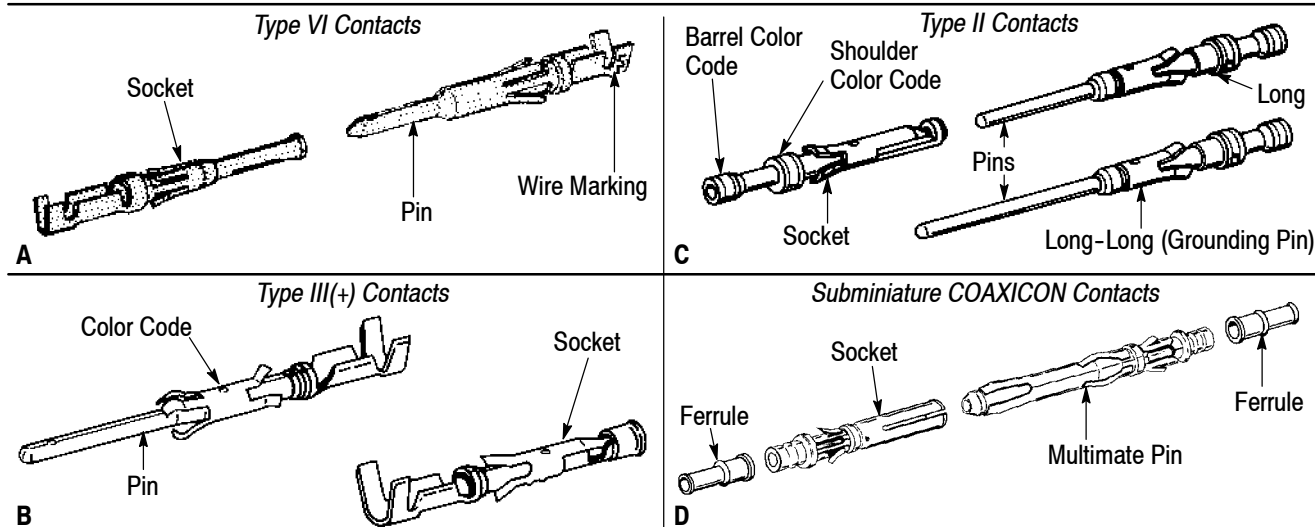
The housings are supplied with conductor seals installed in the back of the contact cavity. If necessary, they can be removed by inserting a blunt tool into the front of the cavity and pushing the seal out the back of the cavity.

#### CAUTION



Subminiature COAXICON® Contacts (pin springs and socket leading edges) could damage the seal. To avoid this, remove the seal from the housing and install it on cable BEFORE stripping the cable.

Prepare the conductors and crimp the contacts in accordance with the instructions packaged with the crimping tool. Then match the style of contacts with one of the styles shown in Figure 2 and select the appropriate procedure from the following text.



CONDUCTOR		MULTIMATE CONTACTS		
TYPE	WIRE SIZE (AWG)	STYLE	DESCRIPTION	DOCUMENT
Single Wire (Solid and Stranded)	18-14	Type VI	1-PIECE (Precision Formed)	408-1379
		Type III(+)	2-PIECE (Precision Formed)	
		Type II	2-PIECE (Screw Machine/Precision Formed Spring)	
Coaxial Cable	RG-161, 174●, 178, 179, 187, 188, 196●, and 316	Subminiature COAXICON	3-PIECE (Screw Machine Inner Contact Body with Precision Formed Outer Shell and Ferrule)	

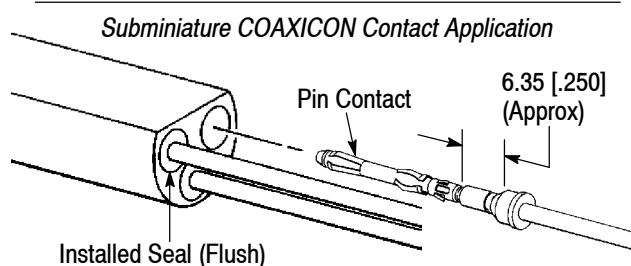
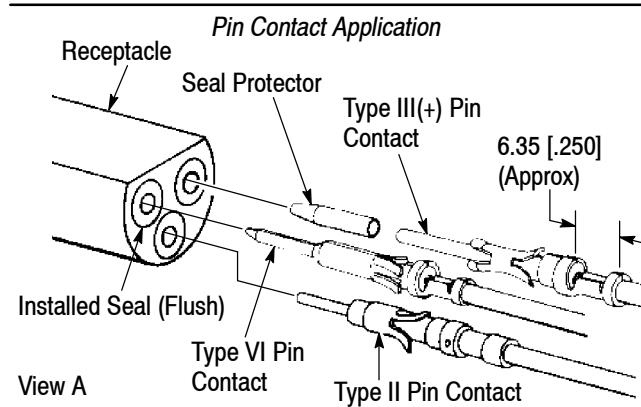
Figure 2

**NOTE**


If the connector is to be panel-mounted, do so in accordance with Section 8, PANEL MOUNTING, BEFORE inserting the contacts.

#### 4.1. Type II, III(+), and VI Contacts

1. When inserting a pin contact, install the Seal Protector 208337-1 over the pin portion as shown in Figure 3, View A. When inserting a socket contact, use the Seal Protector 208338-1 in the socket portion of the contact as shown in Figure 3, View C.
2. Moisten the protector with isopropyl alcohol.
3. Align the contact with the back of the cavity and insert it straight into the cavity until bottomed. See Figure 3, Views A and C.
4. Pull back lightly on the conductor to ensure the contact is locked in the cavity. Remove the seal protector from the front (mating face) of the connector.



**NOTE:** Mating contacts (sockets) are inserted into plug.

View B

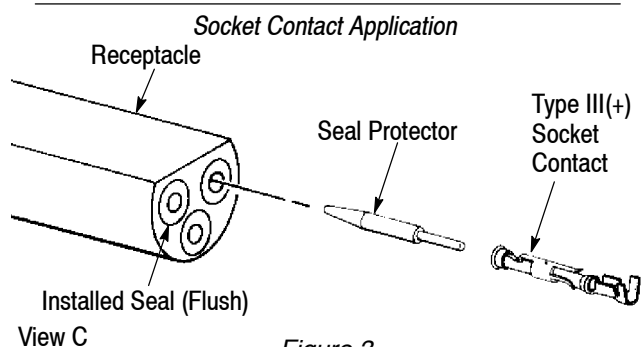


Figure 3

#### 4.2. Subminiature COAXICON Contacts

1. Position the seal so the collar is approximately 6.35 mm [.250 in.] from the end of the contact as shown in Figure 3, View B.
2. Align the contact with the back of the contact cavity and insert it straight into the cavity until bottomed.
3. Pull back lightly on the conductor to ensure the contact is locked in position.
4. Check seal - it should have seated flush with the back of the connector. If it is NOT, push it in with your finger or a round-tip tool. See Figure 3, View B.

#### 5. EXTRACTION OF CONTACTS

1. Align the sleeve of extraction tool 305183 with the front of the contact cavity. See Instruction Sheet 408-1216 for proper use of the extraction tool.
2. Push the sleeve straight into the cavity until bottomed, then twist the tool to be sure the contact lances have released.
3. With the connector firmly supported, depress the push rod button. The contact and seal should back out of the connector easily.
4. Remove the tool and contact from the connector. The seal will back out of the connector.

#### 6. INSPECTION AND REPAIR



Damaged product should not be used. Inspect the contact and the seal. If either is damaged, replacement is necessary.

##### 6.1. Replacing Damaged Contact

1. Slide the seal away from the contact.
2. Cut the conductor directly behind the contact.
3. For all contacts except subminiature COAXICON, remove the seal from the conductor and place it in the cavity from which the contact was removed.

**NOTE**


Subminiature COAXICON Contacts should NOT be inserted through the seals unless new seals are replacing damaged seals as described in Paragraph 6.2.

4. Prepare the conductor and attach a new contact. See Figure 2 for Instruction Sheet references for tooling.
5. Insert the contact the same as for original installation. See Section 4, ORIGINAL INSERTION OF CONTACTS.

## 6.2. Replacing Damaged Seal

1. Carefully cut the seal off of the conductor.
2. Determine the style of contact and position the new seal accordingly.
  - a. For all styles of contacts except subminiature COAXICON, insert a new seal into the cavity from which the contact was removed.
  - b. For subminiature COAXICON Contacts only, moisten the contact and the inside of the seal with isopropyl alcohol, then carefully slide the seal over the contact until properly positioned. See Figure 3.

**CAUTION**


When installing the seal on coaxial socket contacts, start the seal, then carefully lift it over the leading edges of the socket with a round tip tool or damage could result to the seal. See Figure 4.

3. Insert the contact just the same as an original installation. Refer to Paragraph 4.2.

*Moisten with  
Isopropyl Alcohol*

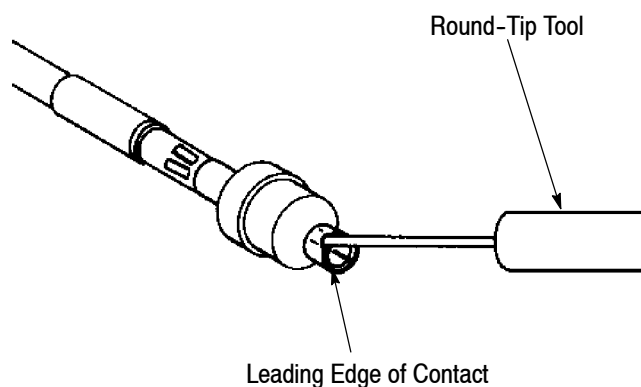


Figure 4

## 7. RE-INSERTION OF UNDAMAGED COMPONENTS

The following procedure applies to contacts and seals that have been removed but NOT damaged.

1. Slide the seal over the contact approximately 6.35 mm [.250 in.]. See Figure 3.
2. Using a twisting motion, back the seal off the contact until the collar appears. Do NOT remove the seal from the contact. See Figure 5.

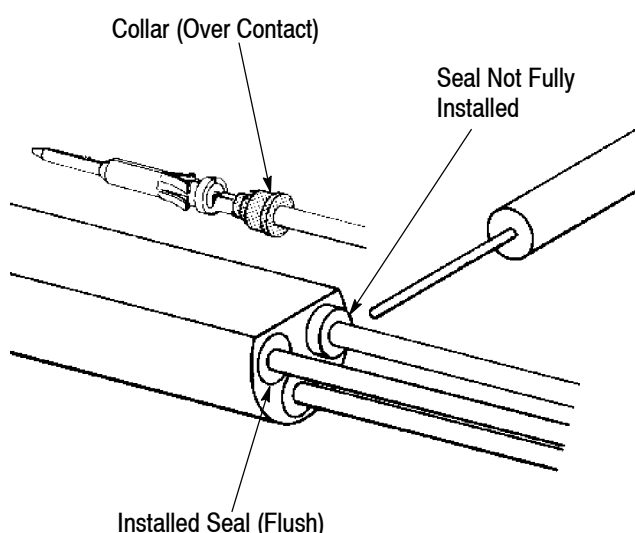
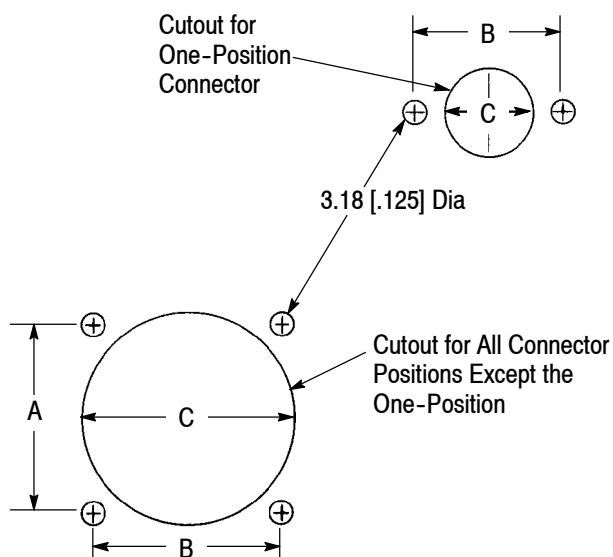


Figure 5

3. Align the contact with the back of the contact cavity, and insert it straight in until it bottoms. Then pull back lightly to be sure the contact is locked in the cavity.
4. Check the seal to be sure it is flush with the back of the housing. If it is NOT flush, seat it with a round-tip tool. See Figure 5.

## 8. PANEL MOUNTING

Make a cutout in the panel using the dimensions provided in Figure 6. Seat the mounting flange on the panel and secure it with screws, washers, and nuts.



CONNECTOR POSITION	DIMENSIONS		
	A	B	C
1	---	19.30 [.760]	12.06 [.475]
2	19.43 [.765]	19.43 [.765]	18.49 [.728]
3	19.43 [.765]	19.43 [.765]	18.49 [.728]
4	21.97 [.865]	19.43 [.865]	22.05 [.868]
8	28.58 [1.125]	28.58 [1.125]	29.72 [1.170]
9	28.58 [1.125]	28.58 [1.125]	29.72 [1.170]

Figure 6

## 9. MATING AND UNMATING CONNECTORS

### 9.1. Mating (Figure 7)

1. Check mating faces of connectors to be sure they are dry and NOT moist, especially after contact insertion.

2. Turn the flat surfaces of the connectors in the same direction, then align the polarizing ribs and slots.

3. Slide the plug onto the receptacle until the retention ring and locking tab engage. Squeeze the retention ring to be sure it has engaged the locking tabs.

### 9.2. Unmating (Figure 7)

1. Depress the gripping ribs to disengage the retention ring and locking tab.
2. Pull the plug straight away from the receptacle.

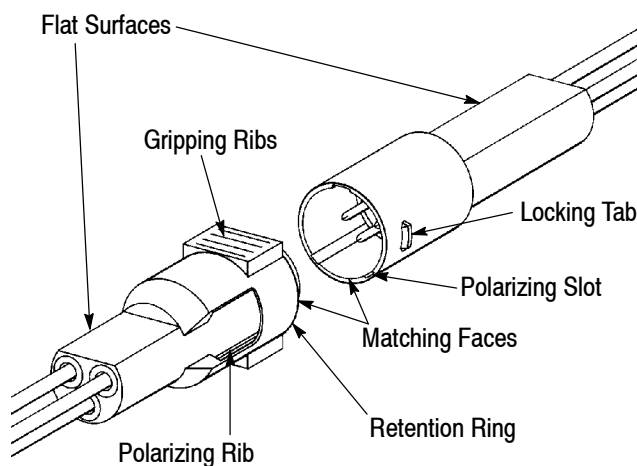


Figure 7

## 10. REVISION SUMMARY

- Updated document to corporate requirements.